Southern California TRACON CDA Design Overview

How does CDA fit?

Federal Aviation Administration

Presentation to: CDA Workshop, GA Tech, Atlanta, GA
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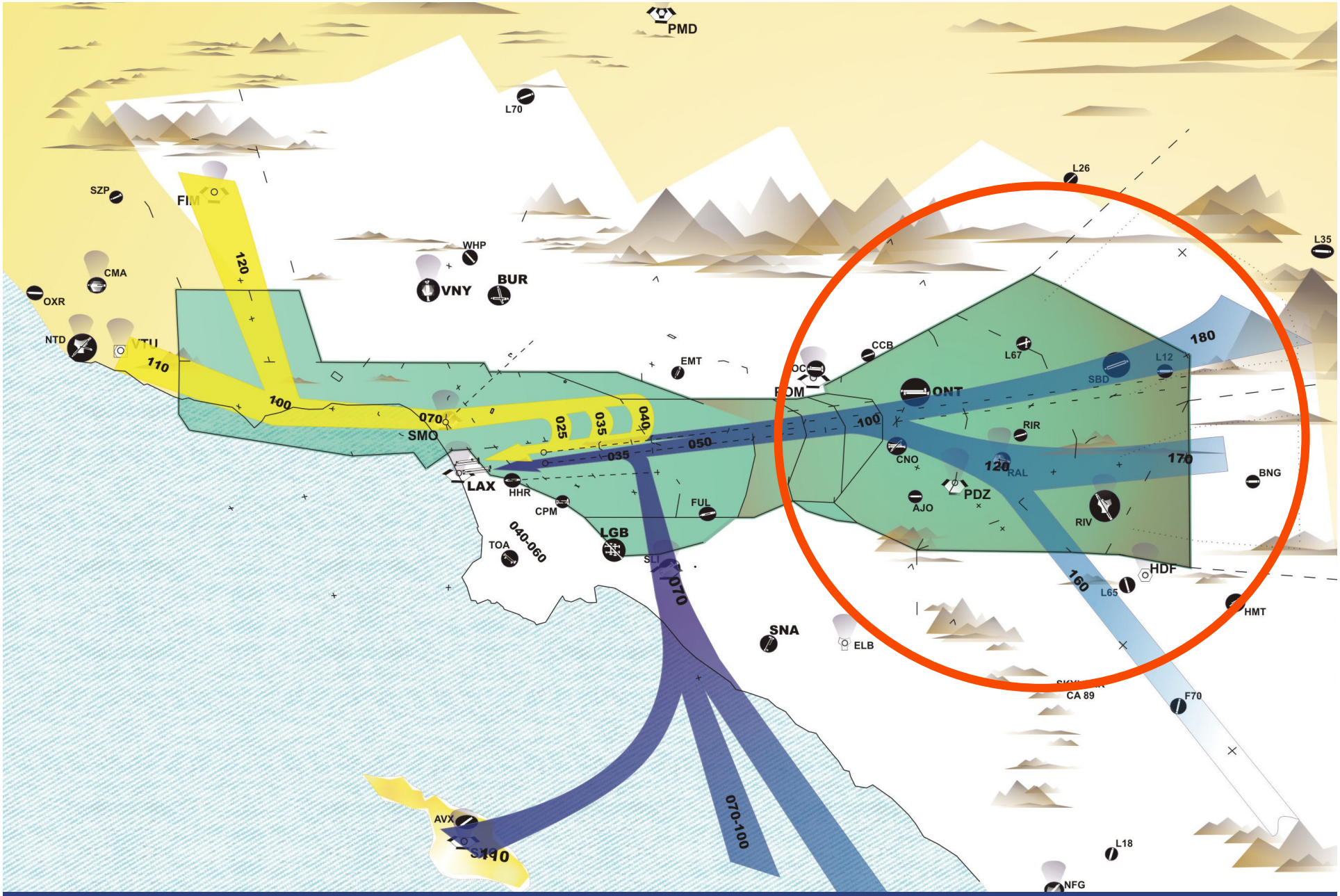
CDA in the Design Process

- How CDA can improve procedure design
  - Allows aircraft to perform on an optimum predictable path
  - Quantified profile changes in response to CDA information
- CDA capacity issues
  - Confidence levels in relation to varied aircraft performance
  - Increasing confidence results in reduced capacity
  - Anchor points may decrease CDA performance but can increase capacity.
- CDA pitfalls
  - Aircraft at flight idle have limited ability to slow further
  - Aircraft at CDA angle have little room to speed up
  - Negative effect of descent buffers
  - Cumulative effect of anchor points
  - Single stream vs. multi-stream
- Real life design example

Real Life Example: LAX Arrival Project

- Design changes in response to pilot/controller workgroups
- New profiles flown and refined in flight simulators
  - B737/B757/B767/A320
- New profile points set
- Redesign LAX Class B
- Modify SCT internal airspace
- Changed over 100 routes
- Modify 4 LAX ILS approaches
- Publish CIVET 5 which replaced MITTS 2
- Publish SEAVU 1 which replaced PARADISE 4
- Initial implementation on February 23, 2006
- Full implementation on March 2, 2006


PMD
L70
SZP
FIM
L26
L35
WHP
CMA
VNY
BUR
OXR
NTD
VTU
110
120
100
EMT
CCB
L67
L12
SBD
180
ONT
070
SMO
025
035
040
050
035
100
RIR
CNO
120
RAL
170
BNG
LAX
HHR
CPM
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TOA
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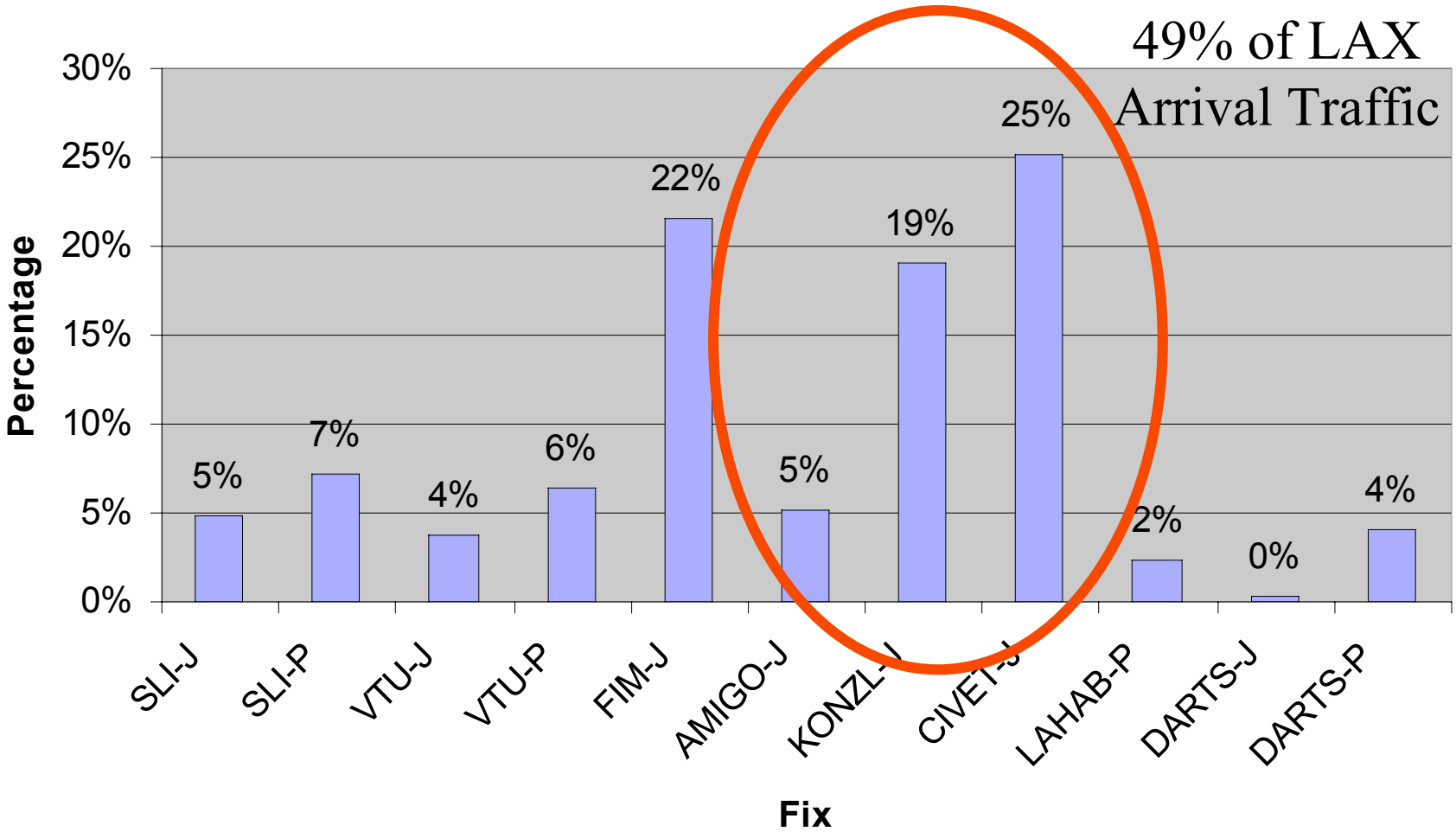
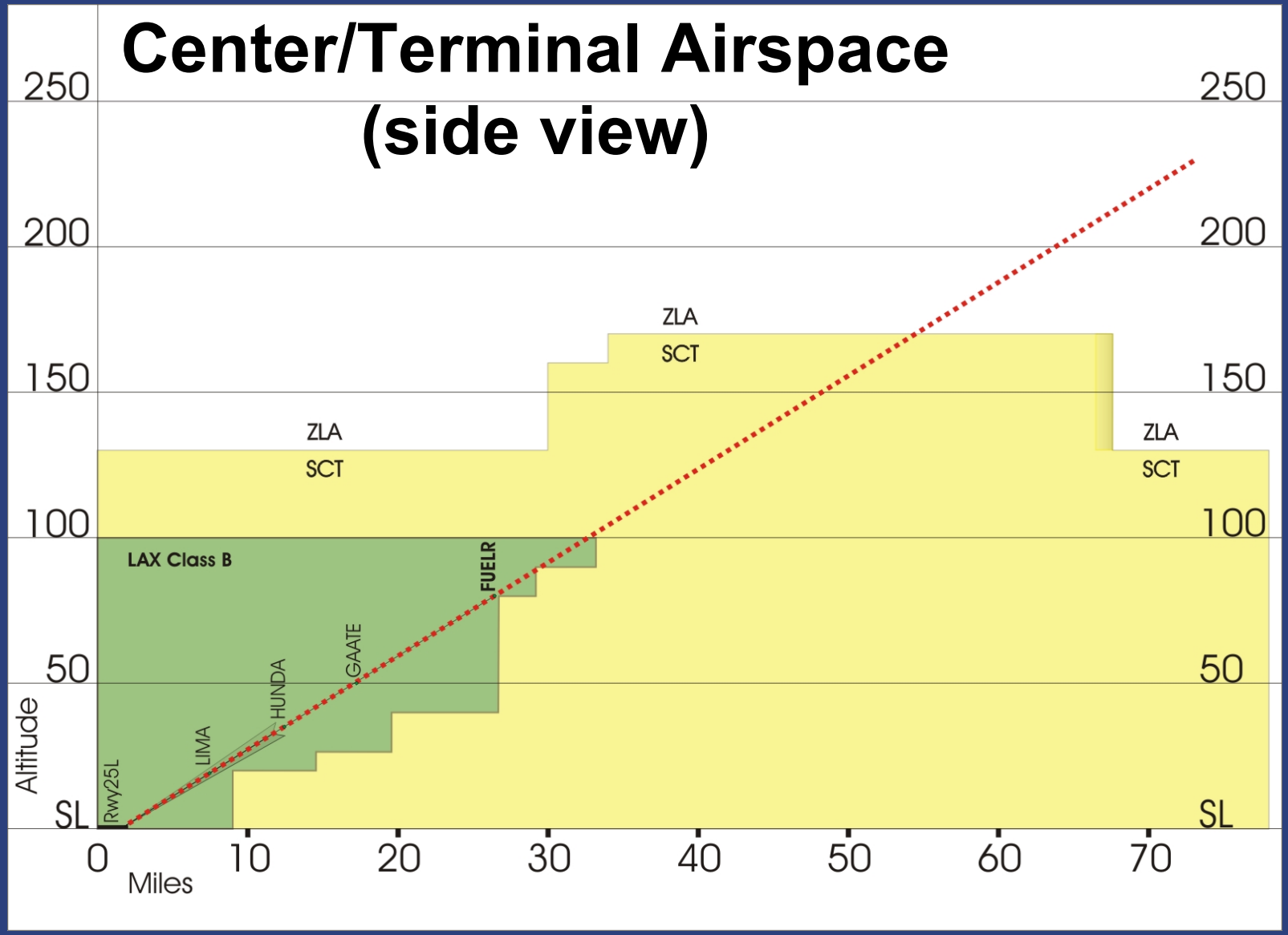
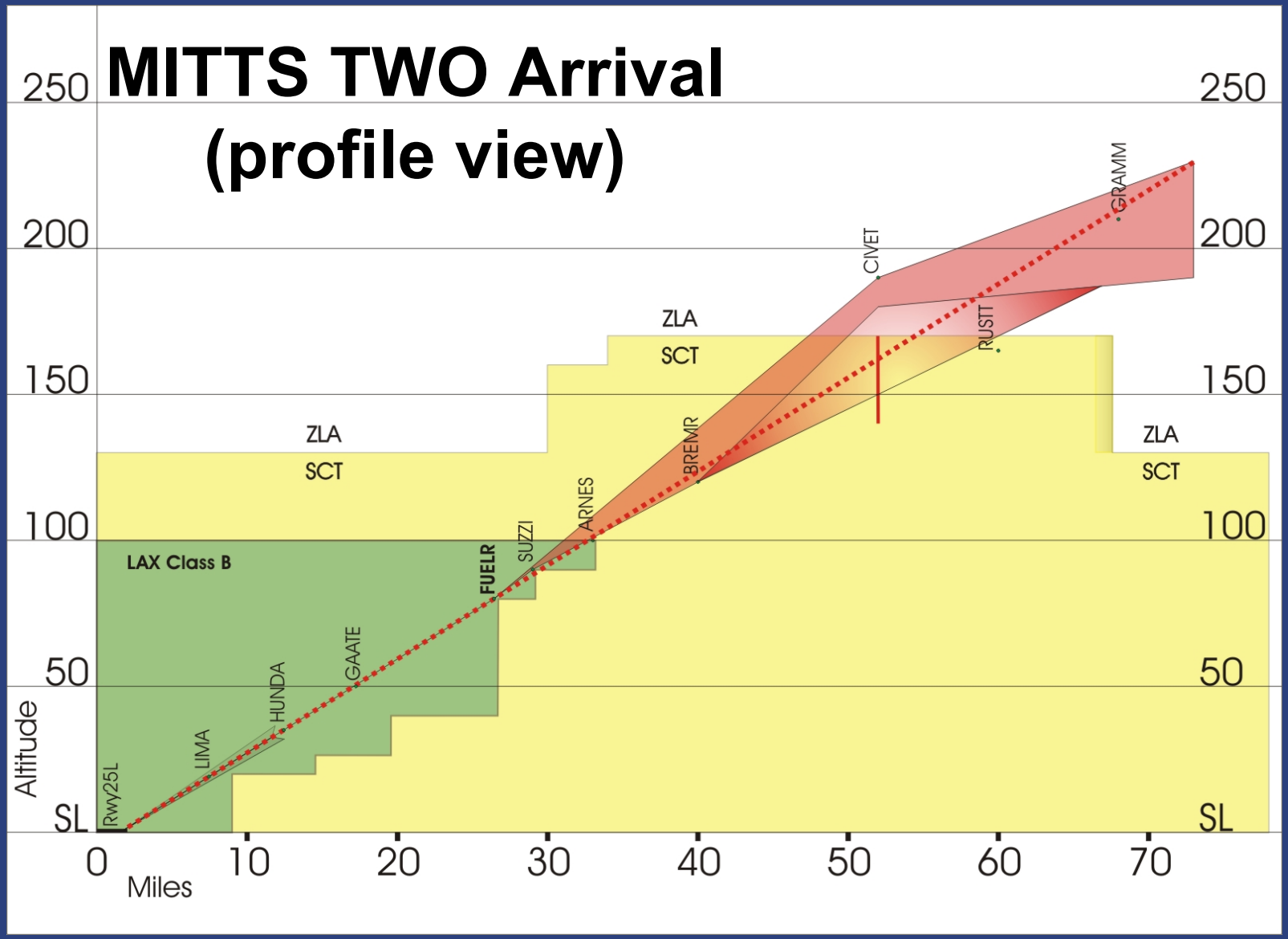
ELB
CA 89
F70
070-100
AVX
L18
NFG


LAX Arrival Fix Breakdown
49% of LAX Arrival Traffic
Percentage
30%
25%
20%
15%
10%
5%
0%
5%
7%
4%
6%
22%
5%
19%
25%
2%
0%
4%
SLI-J
SLI-P
VTU-J
VTU-P
FIM-J
AMIGO-J
KONZL-J
CIVET-J
LAHAB-P
DARTS-J
DARTS-P
Fix

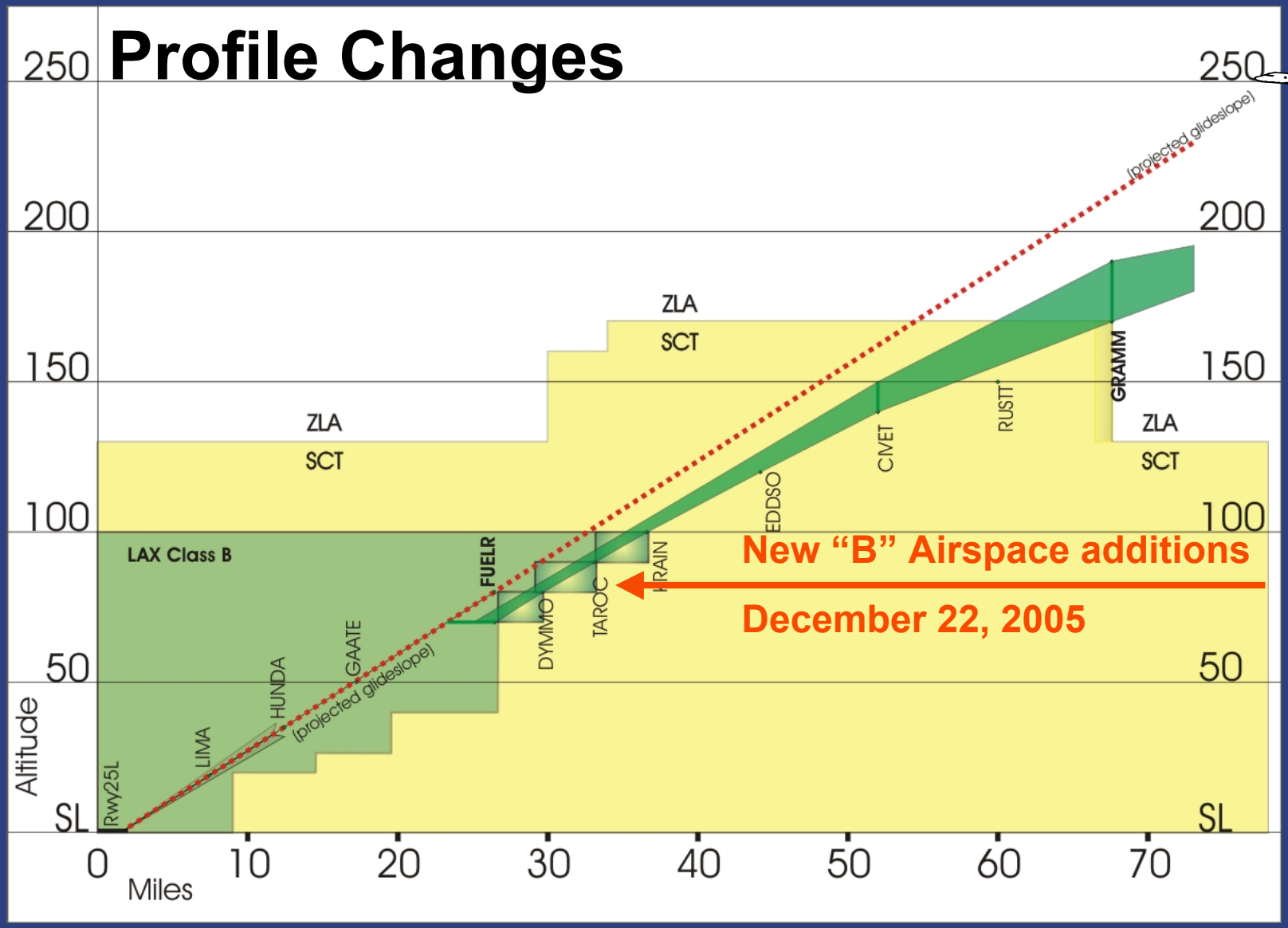
Center/Terminal Airspace (side view)

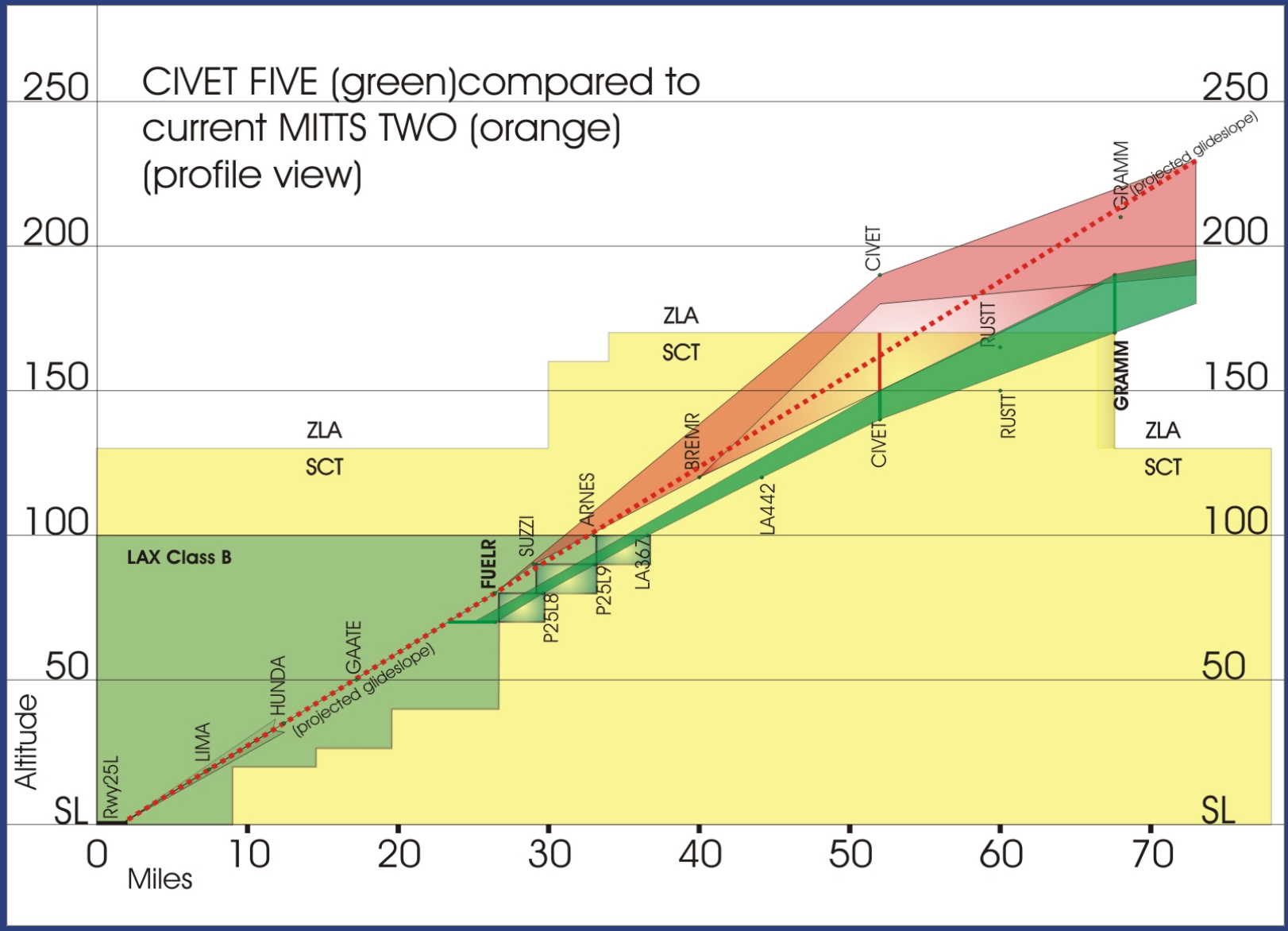


MITTS TWO Arrival (profile view)

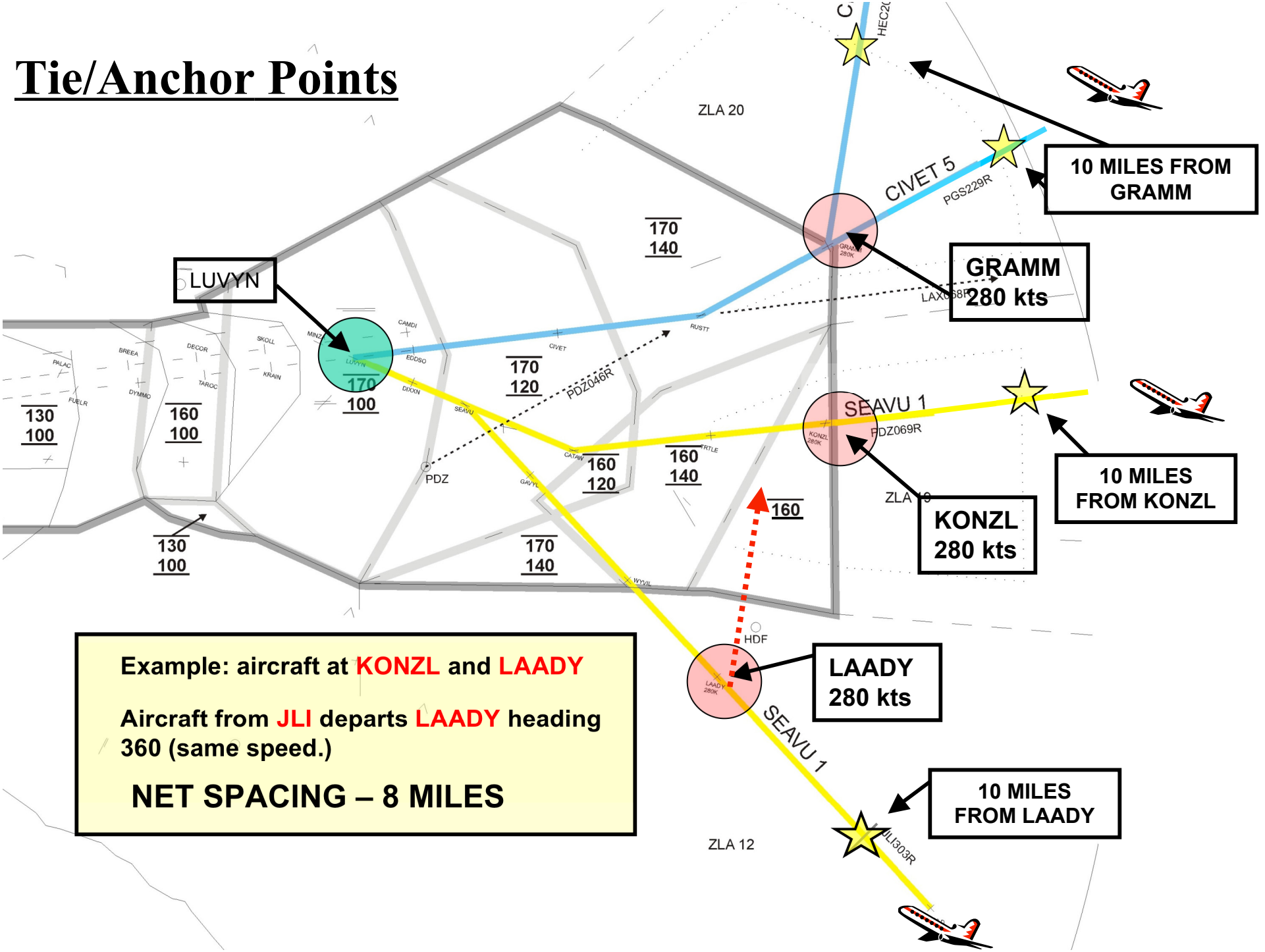


Profile Changes




CIVET FIVE (green)compared to
current MITTS TWO (orange)
(profile view)
250
200
150
100
50
SL
Altitude
0
10
20
30
40
50
60
70
Miles
ZLA
SCT
LAX Class B
Rwy25L
LIMA
HUNDA
GAATE
(projected glideslope)
FUELR
SUZZI
ARNES
BREMR
P25L8
P25L9
LA367
LA442
CIVET
RUSTT
GRAMM
(projected glideslope)

Tie/Anchor Points



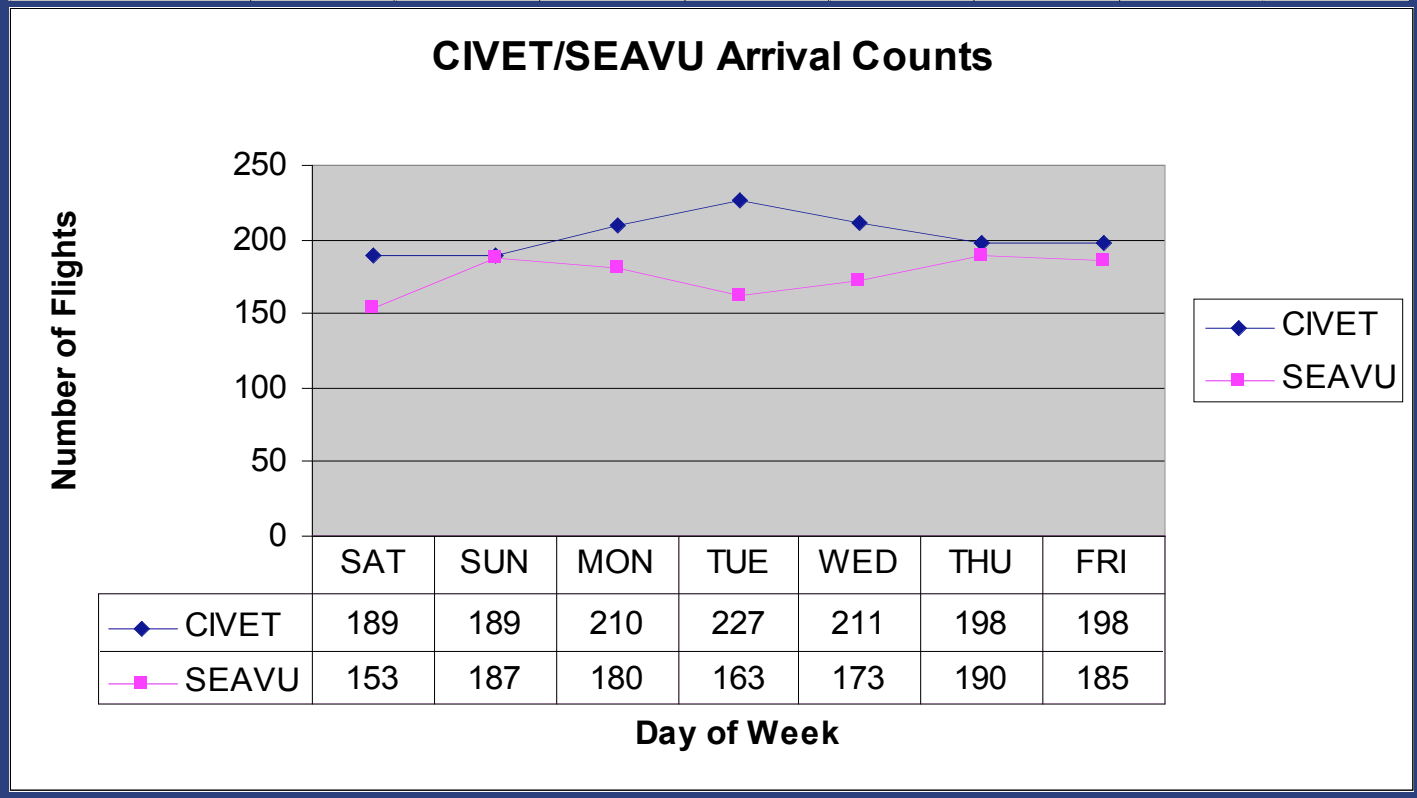
Example: aircraft at KONZL and LAADY

Aircraft from JLI departs LAADY heading 360 (same speed.)

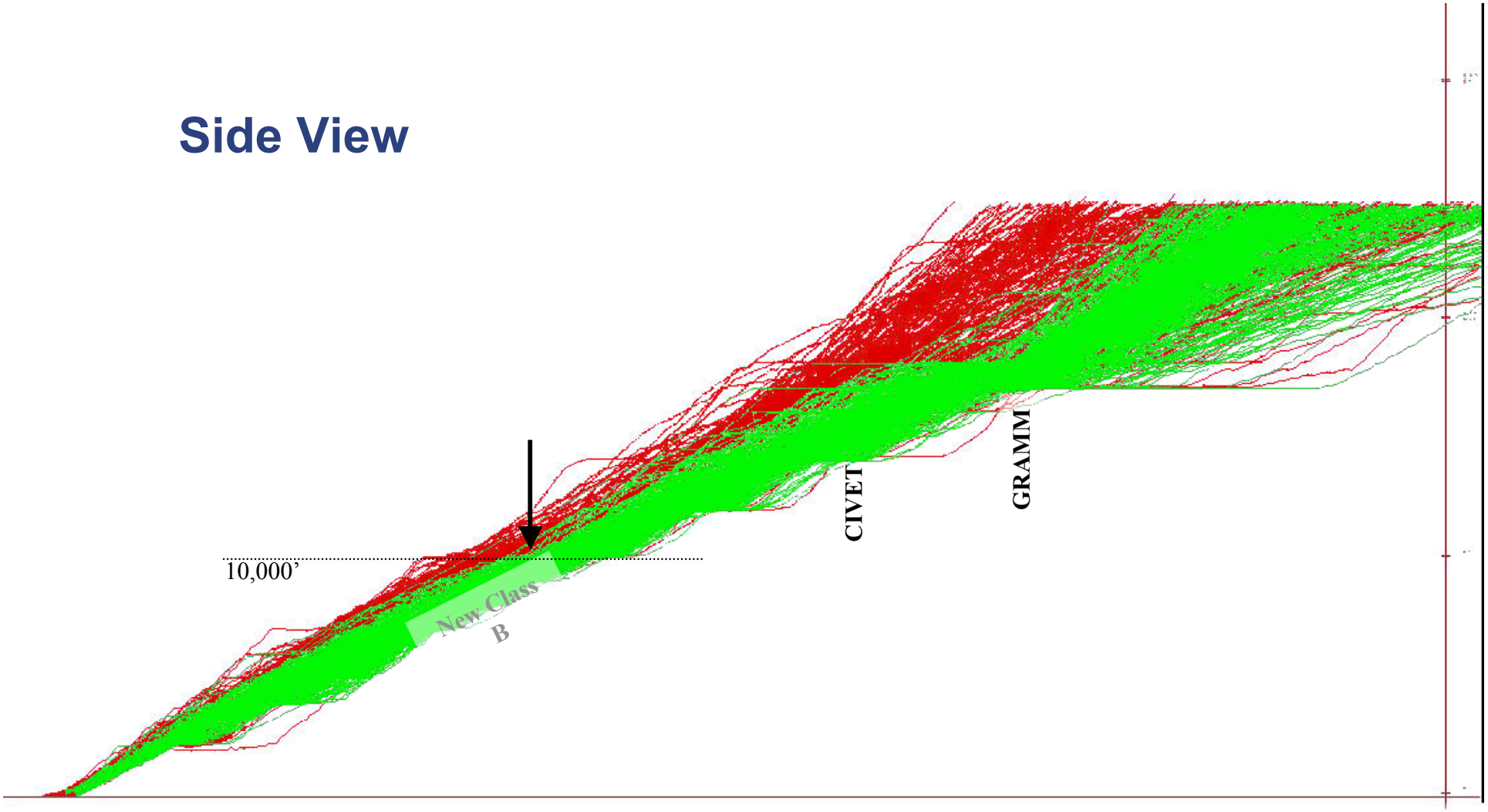
NET SPACING – 8 MILES

LAX CIVET/SEAVU Arrival Counts

	3/25	3/26	3/27	3/21	3/29	3/30	3/31	
	SAT	SUN	MON	TUE	WED	THU	FRI	AVG
CIVET	189	189	210	227	211	198	198	203
SEAVU-KONZL	142	163	152	143	150	177	168	156
SEAVU-LAADY	11	24	28	20	23	13	17	19
SEAVU-total	153	187	180	163	173	190	185	176
VISTA	55	38	25	30	31	47	37	38



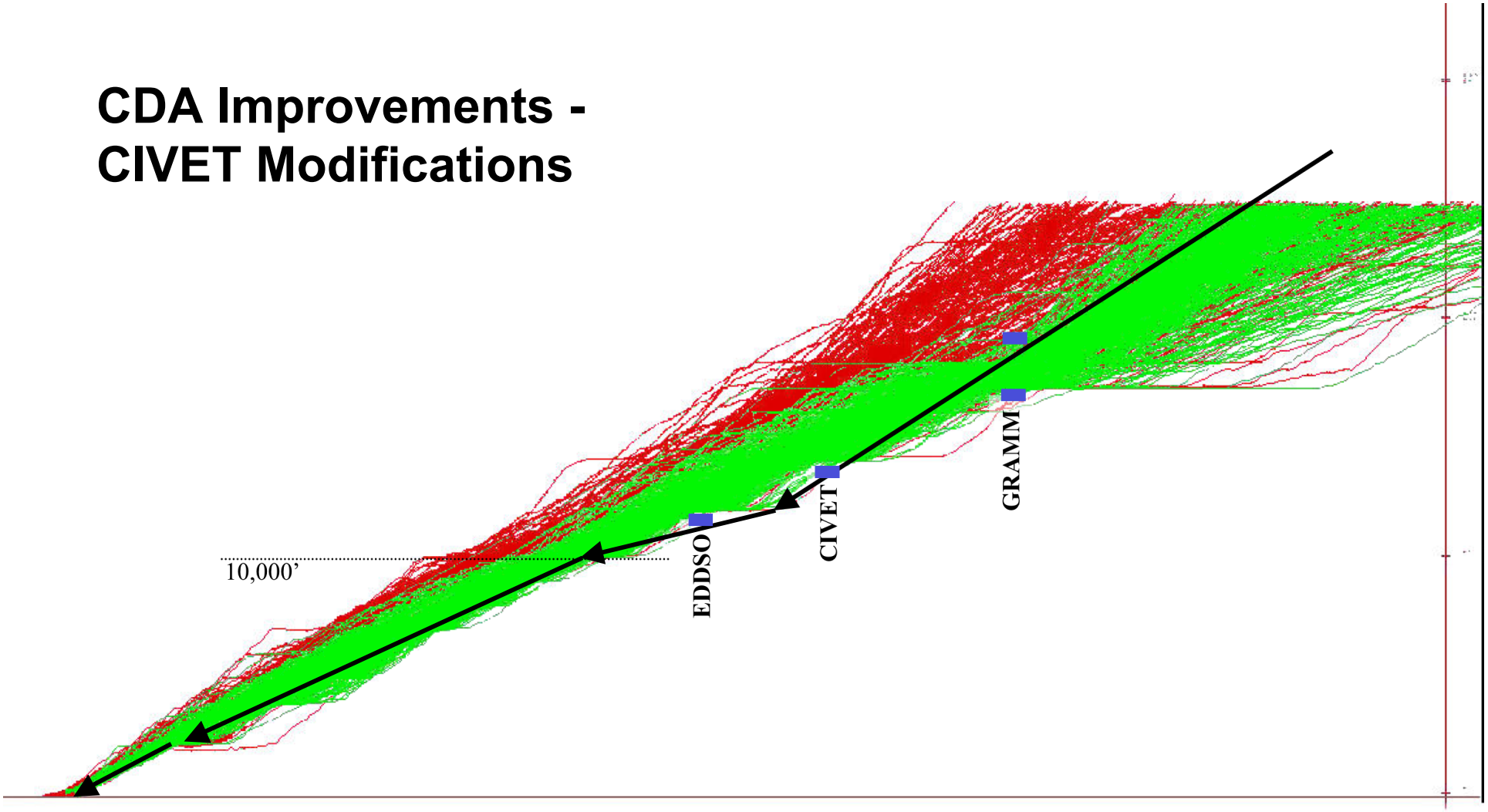
Side View



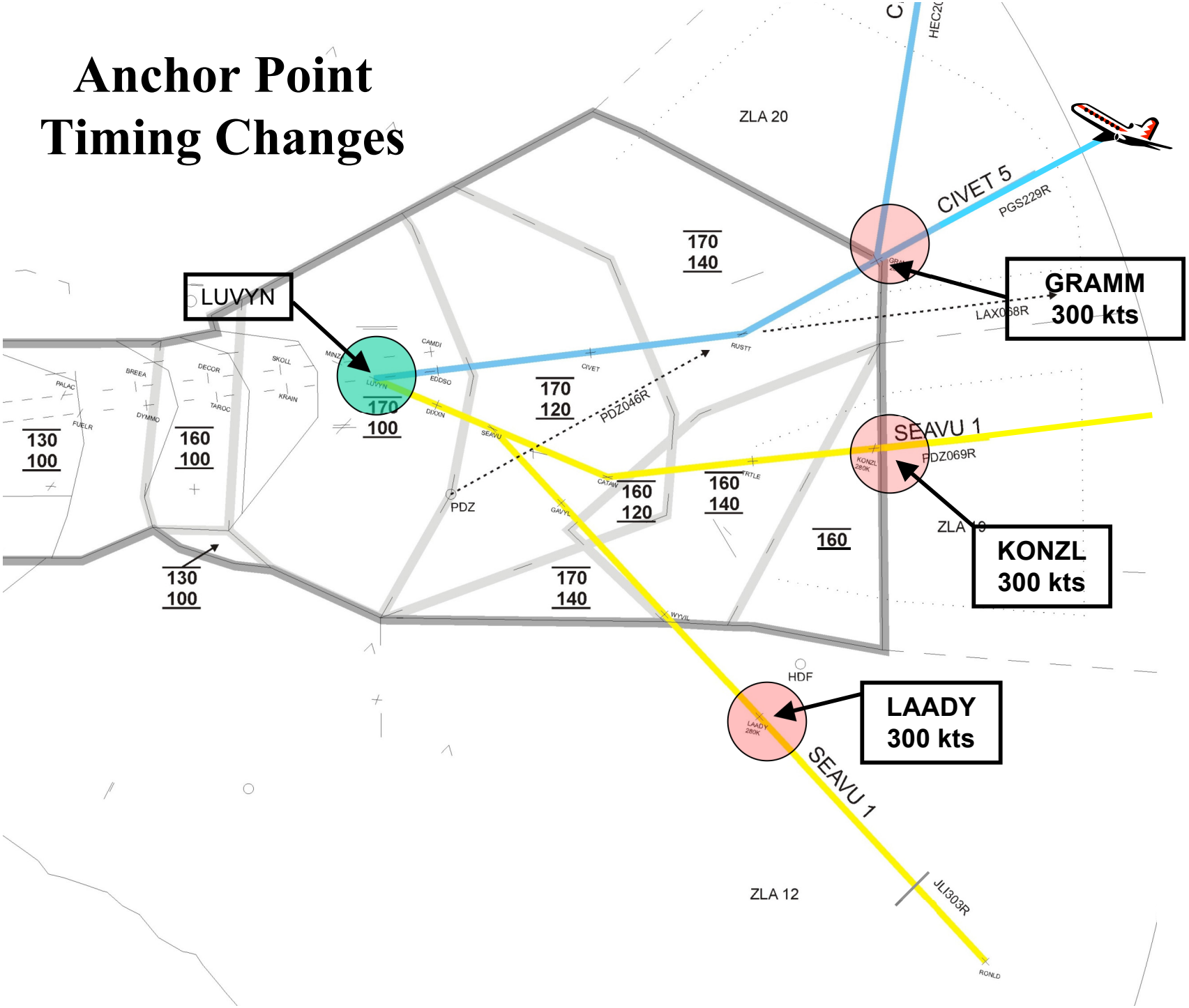
Next Steps Using CDA Information

- Provide a framework for progress
- Minimal Thrust vs. Flight Idle
- Top Of Descent windows
- Free Descent vs. Anchor Points
- Modify STARs for:
  - CDA windows and Anchor Points
  - CTAS timing changes
  - Move transition points further west

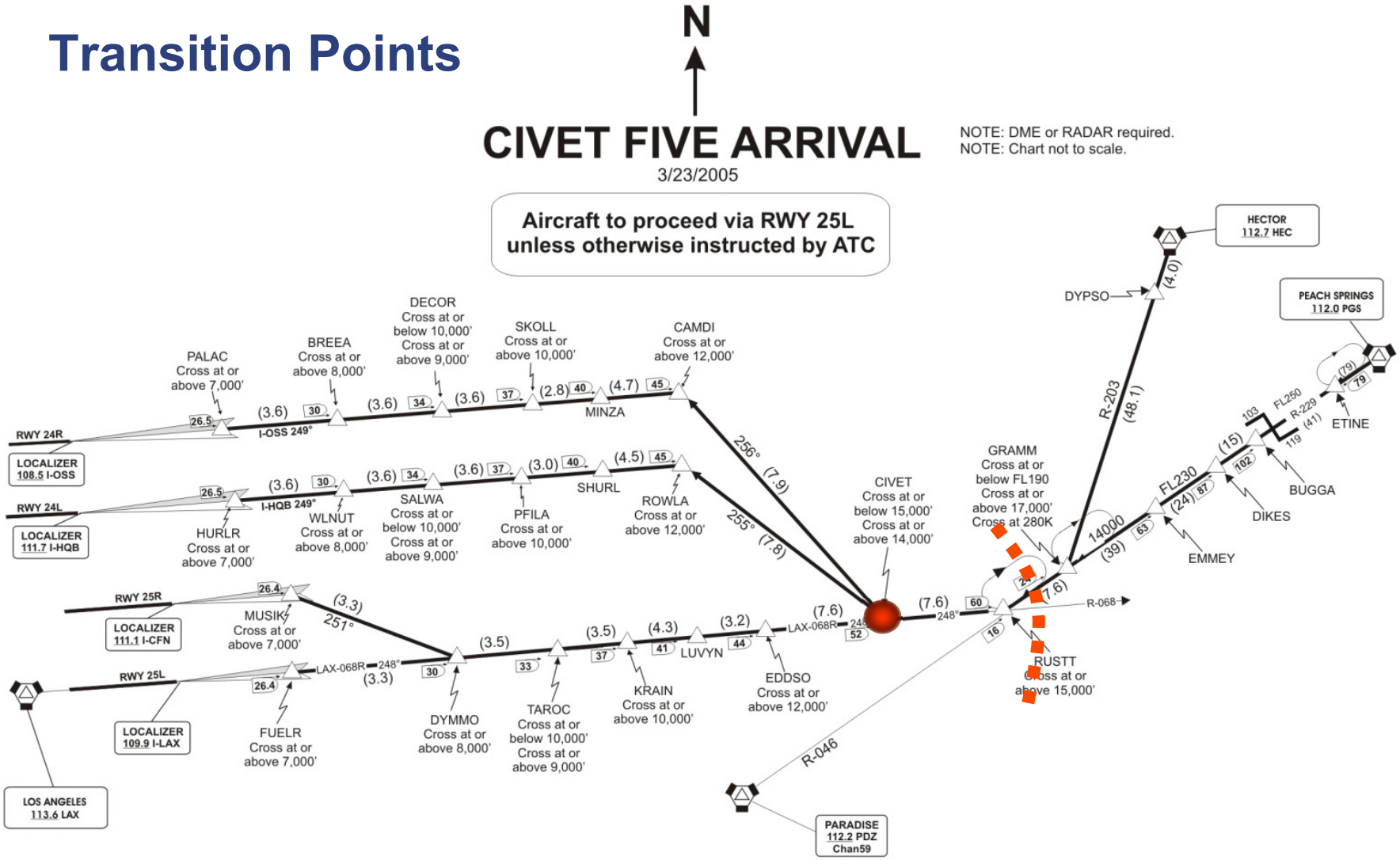
CDA Improvements - CIVET Modifications



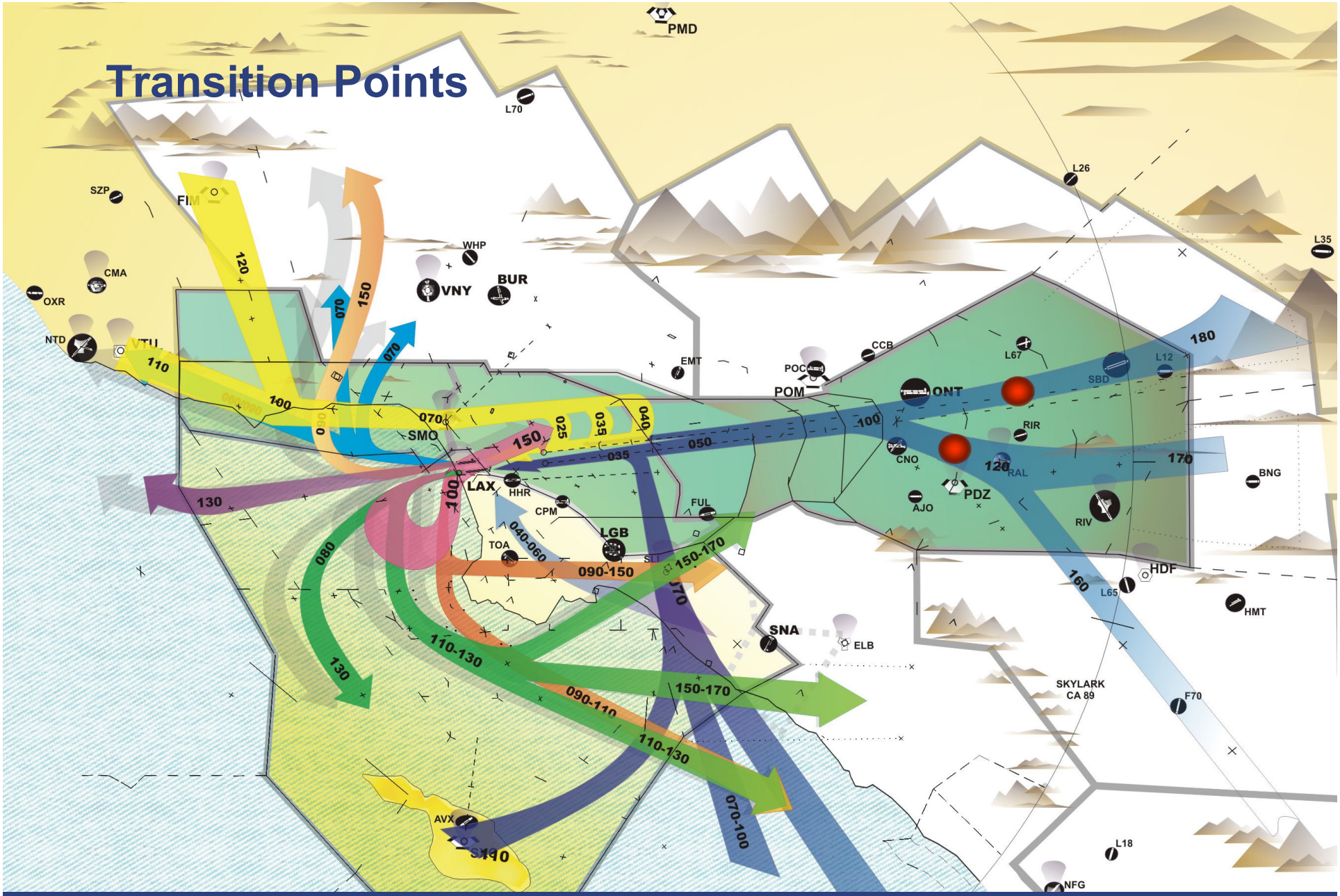
Anchor Point Timing Changes



Transition Points



Transition Points



THANK YOU

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